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(54) **Actuator assembly**

(57) An actuator assembly (10,110) including an actuator (12,112), an output member (16,116), and a spring arrangement having at least one spiral return spring (18,118), the output member (16,116) having a neutral position, a first actuated position, and a second actuated position, the neutral position being between the first and second actuated positions, the output member (16,116) capable of being driven by the actuator (12,112) from the neutral position to the first actuated position and to the second actuated position, in which the spring arrangement is arranged so as to bias the output member (16,116) towards the neutral position from the first actuated position, and is also arranged to bias the output member (16,116) towards the neutral position from the second actuated position.

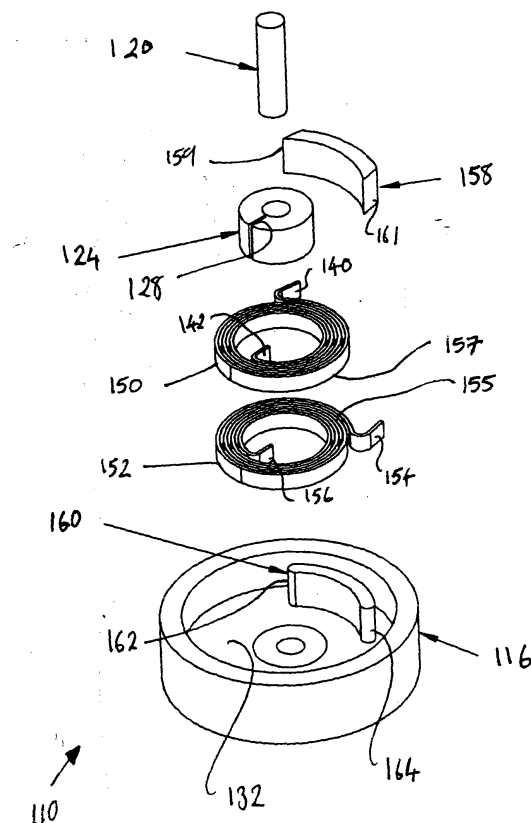


Figure 4



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EUROPEAN SEARCH REPORT

Application Number
EP 04 25 6144

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 4 290 634 A (GELHARD EGON) 22 September 1981 (1981-09-22) * column 2, line 34 - column 3, line 50; figures 1,2 *	1,12,13	E05B65/12
D,A	US 4 821 521 A (SCHUELER ROLF) 18 April 1989 (1989-04-18) * column 2, line 48 - column 3, line 24; figures 1,2 *	1,12,13	
A	US 4 624 491 A (VINCENT BERNARD) 25 November 1986 (1986-11-25) * column 3, line 33 - line 45 * * column 5, line 5 - line 12; figure *	1,12,13	
A	US 2002/096889 A1 (KONGARA RAMENE ET AL) 25 July 2002 (2002-07-25) * the whole document *	1,12,13	
A	US 5 079 964 A (IGATA TETSUZO ET AL) 14 January 1992 (1992-01-14) * the whole document *	1,12,13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B
<p>3 The present search report has been drawn up for all claims</p>			
Place of search		Date of completion of the search	Examiner
Munich		18 January 2005	Pieracci, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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European Patent
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EP 04 25 6144

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

see sheet B



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13,15 (when depending on claim 13)

An output member subassembly, an actuator assembly comprising the output member subassembly and a latch assembly comprising the actuator assembly, wherein the output member subassembly comprises an output member and a spring arrangement biasing the output member to a neutral position from both a first and a second actuated position, wherein the spring arrangement has at least one spiral return spring so that the fatigue life of the output member is increased (page 3, 3rd paragraph).

2. claims: 14, 15 (when depending on claim 14)

A method of assembly an actuator assembly comprising a spring arrangement and an output member, wherein the spring arrangement is assembled on the output member so as to provide an output member subassembly so that the efficiency of the assembly process is increased (page 3, last paragraph).

3. claim: 16

A combined spring including a first and a second spiral spring being integral and being wound in opposite directions (page 4, first paragraph).

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 25 6144

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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18-01-2005

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